

Wirginia Wildlife

Dedicated to the Conservation of Virginia's Wildlife and Related Natural Resources and to the Betterment of Outdoor Recreation in Virginia

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IN THIS ISSUE PAGE
Editorial: Early Small Game Season, Anyone? 3
Hunting and Fishing Recreation on
Virginia's National Forests 4
Bushy-tail Serenade 6
"Squirrelitis" 7
Vulture Blind 8
Shooting Preserves in Virginia
The American Chestnut
Conservationgram
Public Schools Teach Boat Safety
Blue Ridge Parkway 25 Years Old
Rockfish
Deer Crop Damage Control
Bird of the Month: The Wilson's Snipe
Youth Afield
Commission Field Force Notes
The Drumming Log
On the Waterfront
Back Cover: Through the Year with Bobwhite 28

COVER: Twenty-four Virginia counties have early squirrel seasons in October. Hunters in other counties—unless their counties had early seasons in September—will have to control their "squirrelitis" until November 20. The fox squirrel, much less abundant in Virginia than the gray squirrel, is more often found in orchards and isolated groves than the smaller gray. Photo by Rex Gary Schmidt.

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Early Small Game Season, Anyone?

BY COMMISSION REGULATION, Virginia's general hunting season opens on the third Monday in November. Ignoring the welter of local exceptions, deer, bear, turkey, squirrels, rabbits, grouse and quail all become legal targets on the same day. Come that day, the campsites fill, eager hunters take their stands, the hounds are loosed, and gunfire echoes across the State as another Virginia hunting season gets underway with a bang.

Is everybody happy? Apparently not. There's a move afoot to have the small game season open a week or two before the deer season. Proponents of this move include the directors of our National Wildlife Federation affiliate, the Virginia Wildlife Federation. Why do these folks want to change our seasons? These reasons are cited:

We're wasting game with a late-November season opening. Game crops do not "store up" from year to year. Game populations reach a peak in September each year, and The Old Man with the Scythein the form of predators, parasites, disease and starvation—has begun to reap his harvest long before we hunters can legally begin to take a portion of the annual surplus.

The solitary, dyed-in-the-wool turkey hunter, who dons his camouflage suit and hides in a blind before dawn to try against the odds to call an old gobbler within range, would have a better chance of success before rather than after the opening day of deer season when deer hunters break up the turkey flocks with their first mass invasion of the forests.

Virginia's "snow law." which prohibits small game hunting in the snow, penalizes west-of-the-Blue Ridge sportsmen because snow comes earlier and stays longer in that mountain and valley country.

Here we come face to face with a stumbling block: The difference in climate and agricultural practice in the western and eastern parts of our state. While an earlier season might be favored by western gunners, it would not be received with enthusiasm by the landownersportsmen of southeastern Virginia. These folks in the peanut-soybean belt are busy harvesting their crops until the first of December, and wouldn't mind if the hunting season didn't come in until then.

This December opening might be ideal for deer. Biologically speaking, our deer season opens too early now. Research biologists have shown that the present opening day coincides with the peak of the deer breeding season in Virginia. Moving the deer season back a week or two would reduce hunter interference with deer breeding activities and result in a better fawn crop the following year. A later small game season, however, would not only rob hunters of the game doomed to die between September and December anyway, but would put pressure upon the survivors we depend upon for a spring breeding population.

The Virginia Wildlife Federation recommended to the Game Commission this spring that the squirrel, raccoon and opossum season run October 15 through January 31 statewide, that the quail. grouse, turkey and rabbit season run November 15 through January 31 statewide, and that the deer season open on the Monday preceding Thanksgiving. The Commission, at its spring meeting, made a motion to the effect that next year the Commission will consider having the small game season come in a week before the deer season.

Now's the time to kick these ideas around, not at an emergency club meeting next spring. Would you be in favor of opening the small game season before the deer season? Would a modification of the Federation's proposal, calling for dividing the state into two or three zones with progressively later seasons from west to east. suit your fancy? Or are you "agin'" any change? Your Commission would like to know.

LETTERS

Bay Stater Writes

AS A FORMER RESIDENT of Virginia, I'd like to take this opportunity to thank the Game Commission and especially the game officials at Camp Pickett for the fine conservation program being carried out. With so much hunting pressure in the eastern states, the opportunities in Virginia are unequalled.

I look forward each year to the opening of hunting season in Virginia, and last year I was fortunate to bag a 7-pointer at Camp Pickett

Your VIRGINIA WILDLIFE is on par with the best of the outdoor magazines, and is thoroughly enjoyed by my family and friends here in Massachusetts.

Leonard C. Upson, Jr. Norton, Massachusetts

Chestnut Blight Deplored

I CERTAINLY enjoy your magazine and think it is wonderful. I agree with Don Carpenter on "Trout-Stocked or Native?" in the June issue on page 8. I also think that something more could be done for a fine tree like the chestnut here in Virginia. I don't think someone has tried hard enough to get rid of this blight. I would give \$100, even more, to get rid of this blight, and I think many people will agree with me.

Dale E. Angle Rocky Mount, Virginia

· For a summary of the status of the chestnut in Virginia, see page 12 .- Ed.

"Second-Best"

YOUR PUBLICATION, in my opinion, is runner up to ARIZONA HICHWAYS-about as big a compliment as I can extend to you.

Robert E. Reinhardt Arlington, Virginia

THIS MAGAZINE to me is quality from start to finish. The whole staff of WILDLIFE is really on the job, and may I tip my hat to these wonderful gentlemen. Thank you for the knowledge I receive from this maga-

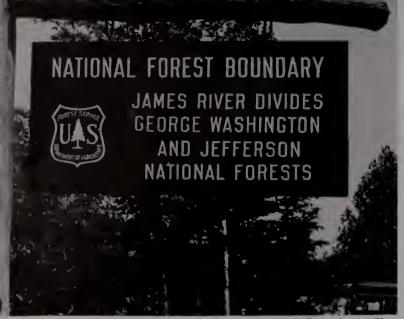
> Mrs. J. F. Stiefbold Richmond, Virginia

WE SURELY do enjoy your magazine. My wife and I cannot wait to get it every month. I wish we got it every week, instead of once

> V. M. Price Culpeper, Virginia

AS A PRESENT subscriber to Virginia Wildlife, I would like to take this opportunity to tell you how much I have enjoyed the magazine. The illustrations, photographs, covers, and articles are excellent. As a fisherman and hunter I have been especially interested in keeping tabs on the latest developments in this field in Virginia.

Robert J. Hackman Falls Church, Virginia



U. S. Forest Service Photo National forest boundary sign on Virginia State Route 130.

HE MOUNTAINS of Virginia, with nearly 1½ million acres of national forest land, make up one of the most important recreation areas in the East. Because these forests are managed on a multiple use basis, hunting and fishing play a prominent role in the scheme of resource conservation on them. Recent estimates of total recreation use, compiled for the Outdoor Recreation Resources Review Commission, show that annual visits to Virginia's two forests, the Jefferson and George Wash-

ington, exceed 2,700.000 each year. The same survey also

showed that George Washington is one of the most heavily

used national forests in the country.

Hunting and fishing constitute an extremely important segment of the total recreation use on these forests. It is significant that, according to recent Forest Service estimates, the 660,000 hunting and fishing visits on these forests represent approximately 25 percent of the total recreation use. In terms of hours of recreation, a considerably higher percentage would be assignable to nimrods and anglers. These figures compare favorably with the nationwide average of about 25 percent where total recreation use on all national forests is associated with fish and game resources. Though we often think of the West when we associate hunting and fishing and national forests, it is clear that these forms of recreation are equally important in Virginia.

When compared with other national forests throughout the country and viewed on the basis of total acreage, big game numbers in Virginia are impressive. Recent estimates by the Forest Service for white-tailed deer herds total 87,000. This is approximately half the total estimated whitetail herd on the Cumberland, White Mountain, Green Mountain, Allegheny, Monongahela, and the Virginia national forests. With the exception of the Lake States, Virginia national forests have the largest number of black bear in the East, with recent estimates placed at 2,300. Turkeys, too, are an important big game resource on Virginia's national forests. Very satisfactory increases in turkeys have occurred in many areas in recent years, and because of this expansion, an estimate of 4,000 birds is probably conservative.

Of the total recreation visits for hunting and fishing on the Jefferson and George Washington Forests, approximately

Virginia Cooperative Wildlife Research Unit Release No. 61-3.

Hunting and Fishing Recreation on Virginia's National Forests

By THOMAS H. RIPLEY. Biologist, Southeastern Forest Experiment Station, Asheville, North Carolina, and BURD S. McGINNES. Leader, Virginia Cooperative Wildlife Research Unit, Blacksburg, Virginia

two-thirds are for hunting. Though not as great, use of these areas for sport fishing is increasing very rapidly, and with stream improvements, better access, and expanded trout stocking programs, the cold-water sport fishery assumes ever increasing importance.

Paralleling the good fortune of an abundant fish and game resource is a management program which, over the years, has become one of the most progressive in the East. Perhaps most significant are the strides that have been made in effective and realistic harvest of whitetails. The position Virginia sportsmen enjoy today is enviable. Balance between herd, environment, and harvest is always critical, and without adequate harvest no manner of aggressive range management and herd protection can be effective. Similarly, long-range efforts to improve game habitat—stabilizing natural forage supplies, and providing supplemental native foods for small, as well as large, game animals during critical periods—have been substantial.

Accompanying the increase in fish and game resources, with progressive management of the environment, has been a concerted effort to provide more and better access for hunting and fishing recreation. Frequently, access has been provided by direct cooperation between the national forests and the game and fish commission in construction or rehabilitation of forest roads. This has resulted in a net improvement in the management of all public forest resources, Improved access increases the amount of acreage available to hunters and often results in a much more desirable distribution of pressure. Hunting pressure is usually self-adjusting to available game supplies, and there is seldom any need to limit sportsman use of either fish or game resources.

Although there has been considerable effort to document hunting pressure and success on national forest lands, there are almost no data describing interrelations between access and unrestricted pressure, game supplies, and harvest. Knowledge about the relations between these elements is needed, particularly in planning for improved or increased access to relatively remote areas. Several important aspects of this problem are being undertaken jointly by the Virginia Cooperative Wildlife Research Unit, the Virginia Commission of Game and Inland Fisheries, and U. S. Forest Service through the Broad Rum forest-wildlife project on

the New Castle Ranger District in Craig County. In addition to the major concerns of this project (to appraise several systems of forest-wildlife management in terms of game population response) is a study aimed at developing an understanding of interrelations between game supplies, hunting pressure, and hunting success. Because the area was recently opened to hunter access by the construction of a 10mile road, the area is of especial concern. Since its opening in 1957, check stations have been maintained and data accumulated for big game hunting. The tabulation below reports the first four years of data accumulations and shows the changes which have occurred in hunting use of the area.

Hunting Pressure and Success on the Broad Run Area, 1957-1960 (Approximately 6000 Acres)

Year	Total Pressure	Deer Kill	Success	Herd Size
	(Man-hours)	(Number)	(Hours/deer)	(Numbers [est.])
1957	248	7	35	75
1958	1,435	6	240	90
1959	775	6	129	100
1960	1,158	6	19 3	110

These data indicate that pressure in newly accessible areas may be very light the first year but may increase sharply as accessibility to the area becomes known and sportsmen



Commission Photo by Harrison Expanded trout stocking and sportsman access programs are underway on Virginia's national forests.





It is estimated that some 2,300 black bear and 87,000 whitetail deer are present on the Jefferson and George Washington forests.



take time to "try" it. Pressure in the following years may first drop and then level off with subsequent changes following game supplies.

The Broad Run hunting use data are particularly interesting in this respect because they undoubtedly reflect use of a new area with a relatively low deer population. It is entirely probable that the experience of hunters in 1958 was fairly dismal and resulted in the sharp drop in pressure which occurred in 1959. Although not all of this total pressure is assignable to deer hunting, a major portion is. Deer in this area are expected to increase rather sharply in the next few years in response to intensive management and protection, and this may be followed by a corresponding, though tardy, rise in pressure. An increase in turkey numbers is anticipated, and grouse and squirrels, too, should provide attractive hunting. One thing certain is that hunting pressure prior to construction of the 10-mile access road was very low in Broad Run and that this road made an immediate and important contribution to hunting recreation in a short space of time, even though big game supplies are not high in the area.

The prospects for hunting and fishing on Virginia's national forests are indeed bright. With few exceptions, game resources are increasing, effective long-range management of the environment is rapidly being extended to all areas of the forest, and perhaps most important, the needs of the sportsmen for access to these resources is a key feature in cooperative work on the national forests. Data such as those coming from Broad Run may provide answers which will benefit both the recreationist and the folks who are charged with managing the forest resources on Virginia's national forest lands.



When squirrel hunting, work hunting grounds systematically, keeping behind cover as much as you can. Following along a stream or valley is often
a good plan.

By W. E. HISEY, JR.

ILL, you're one of those guys who likes beautiful music. but did you ever hear music half as pretty as that?" That was Robert's first comment at the opening of the squirrel season. This so-called music Robert was talking about was the shrill, excited bark of a big bushy-tail. Of course you squirrel hunters are acquainted with bushy-tails. Sure! And, boy-o-boy, do we have those big ones down here in the good old Shenandoah Valley.

The alarm clock hadn't done a very good job of waking me that first day of squirrel season, but Robert and his brother Henry had made quite enough noise to make up for the old "bell buzzer." I sleepily got into my clothes and in no time we were trodding down the river road to the woods. All three of us carried .22 rifles, for we feel that it is taking an unfair advantage of the squirrels to use the more popular "blunderbuss" on our little gray friends.

After what seemed like hours of walking, we climbed the ancient rail fence into a real squirrel woods. Robert is strictly one of these "lone wolf" hunters, so before Henry and I knew what had happened he had vanished like a ghost, and we knew that soon an unlucky squirrel would fall upon the golden leaves. Henry and I took an old logging road and were soon deep in real squirrel country. We had hardly gotten our pipes going when a distant bang-zip rang out through the woods and we knew that Robert had made the first kill of the year for "our gang." Since Henry and I are bosom friends, we had parked our lazy bones only about 15 feet apart. I had my eyes glued to the top of a giant hickory tree from which a slow rain of hickory shells was falling. Faintly I head the low click of Henry's Winchester as he pulled the hammer back. At almost the same instant I heard the wild, furious chatter of a gray. He had also heard that click but too late, for a well placed superspeed brought him tumbling down to Mother Earth. That too-well-known chatter of my hickory tree squirrel reminded me that I also wanted squirrel for supper, and if that want was to be fulfilled I'd better pay attention to my own hunting. I quickly pushed the safety of my rifle. but too late. A gray had seen me and was in full flight to a giant dead chestnut. I knocked a bit of bark from the ancient tree as he disappeared into his cozy den, but my wild shot only scared him more—enough to keep him "holed" the rest of the morning. I had just put another shell into my rifle when a lone black robber of the corn fields sailed onto a lofty perch in the top of a half-dead white oak. One quick shot and another good deed was done.

I decided that if I were going to eat squirrel for supper I'd better move on to less disturbed parts. In no time I was carefully picking my way to within shooting distance of a big hard-shelled hickory tree. When within 30 feet of the tree I saw a fat gray coming down the side, and dropping to one knee I drilled a neat hole through his neck, I





Commission Photos by Kesteloo

The remains of hickory and other nuts are tell-tale signs of a squirrel's presence. Dogs are used to find squirrels and distract their attention from the hunter.



Commission Photo by Kesteloo

Crow-shooting can liven up things when squirrels make themselves scarce.

quickly shoved another shell into the chamber and from the top-most limb I got another fine fat gray.

The faint crack of a twig warned me of Henry's presence. And, boy, was he mad about that; it was the first time in years he had given his presence away by not walking as a true squirrel hunter should. We decided that we had had enough fun for one day so started in the direction of home. When we were almost to the fence we heard Robert's rifle crack three times as fast as you can say "skat" and we had



Commission Photo by Kesteloo

"It's the matching of your skill against those wise little bushy-tails" that's fun.

our suspicions as to what had happened. While we were waiting for Robert an inquisitive fox squirrel stuck his head out of a hole in dead sassafras and was quickly sent to squirrel heaven.

After we had waited about 15 minutes, Robert arrived with two nice grays and a "giant" fox squirrel. He was quite proud of the fox squirrel because they are very scarce in this part of the valley. The lucky rascal—he surely must have been born with a horseshoe around his neck, and the picture and blessings of Daniel Boone in one hand. All three of us can go hunting, and if there is anything like luck needed during the day, Robert always has it.

Five grays, two foxes, and one crow is not a record for three hunters but it's just as much fun. It isn't just the killing and number of squirrels, but it's the matching of your skill against those wise little bushy-tails. Isn't Mother Nature a wonderful thing?

If any of you fellows have never heard a bushy-tail serenade, just drop by this fall. I am very fond of company.

" Squirrelitis "

By ROBERTS MANN and DAVID H. THOMPSON

QUIRRELITIS" is a common contagious disease in many parts of the country. It seems to affect lazy people more than others, and the only cure is to go squirrel hunting. Farmers have it during the sultry dog days of August and early September when the hired man stops whistling, the mules' ears droop, and the creek dries up almost to a trickle. In small towns the menfolks seem to catch it about the time when the leaves need raking or their wives start to nag about taking down the screens, putting up storm windows, and other foolish things.

Every fall, hunters shoot far more squirrels than pheasants, quail and doves. Only the cottontail rabbit is hunted by more people, and only the rabbits, deer and waterfowl are hunted over more of the North American continent. The squirrel is Game Species No. 2. Fried squirrel is mighty good eating and squirrel hunting in a sportsmanlike way—where a hunter pits his woodcraft and marksmanship against the wily tricks of the wary "bushytails"—is an understandably popular pastime.

Some of our most enjoyable experiences and most valuable lessons in nature lore occurred long ago when it was too wet to do any farm work and grandpa, right after 5 a.m. breakfast, would take his long rifle down from its rack and head for the Crooked Creek bottomlands. He wore moccasins; we went barefoot. Down in the tall timber we would squat on a log and wait, motionless and silent. It's surprising what you see thataway—how many wild creatures decide that it is safe to go on about their business.

But if a squirrel moved, or grandpa spotted one watching us, that rifle came up very slowly, cracked, and down he tumbled—neatly drilled thru the head. Once, when a squirrel was lying flat on a horizontal limb, grandpa "barked" him in true pioneer fashion: the bullet went thru the bark of the limb and, stunned by the concussion, down he came without a mark on him. A simon-pure squirrel hunter scorns to use a shotgun, which he calls a "scattergun," not only because it inflicts too many wounds on the body of the animal but because so many are cruelly crippled.

Some people hunt in pairs, or singly with a dog. If one man sits motionless or, as they steal silently thru the timber, "freezes" while the other man walks on, a squirrel will move around a tree and become an easy target for the sitter. A trained dog, usually a feist, will cruise thru the woodland, pick up the scent of a squirrel that has been on the ground, and bark madly at the base of the tree where it took refuge. The squirrel, watching the dog, forgets to watch the man.

Squirrel hunting may be actually a conservation measure in some localities and certain years. Squirrel populations, like those of many other wild animals, seem to rise and fall in cycles. When they are too abundant and overcrowded, squirrels have epidemics of diseases which kill or weaken them and, if there happens to be a scarcity of nuts and acorns, many die of starvation during a severe winter. In pioneer days, when eastern North America was one vast forest, some years there were migrations, southerly or easterly, of hundreds of thousands of gray squirrels that even swam across big rivers such as the Ohio. What a sight that must have been!

OCTOBER, 1961 7



Photo by Charles W. Schwartz

Turkey vultures sunning.

VULTURE BLIND

By ROBERT H. GILES, JR.

T was 11:47 when Ben nudged me. "Here they come!"

Sure enough, four vultures had appeared on the horizon. We crouched tensely in the blind, not moving. We were camouflaged in a small green tent behind the sprawled carcass of a dead dog laid out as bait. The sun had heated the inside of our cramped quarters well above the outside temperature of about 90. We were soaking with perspiration but hardly noticed this after the vultures appeared and began to sail nearer.

Early that morning I had picked up the dog carcass at the city pound. Then with a hypodermic needle I had removed some fluid from the dog's right eye, replacing it with a dose of Avertin large enough, I hoped, to knock out a vulture. Avertin is an anesthetic normally used in human and veterinary surgery, but some scientists have found it useful in knoeking out active or dangerous animals like snapping turtles and poisonous snakes before studying them. The drug's big advantage is that it can be administered through the mouth. I was hoping the eye would serve as a capsule for the drug when the vultures began to feed. So far as I knew Avertin had never been tried on vultures nor in this unusual way. If reports were correct, they would attack the eyes first, and we expected the drug would knoek them unconscious while they finished their meal.

As we watched the strange, silent ereatures drifting closer like graceful black galleous, I whispered to Ben the question that has stumped wise men through the ages, "How did they know that scrawny little dog was here?" Ben shook his head, smiling in wonder, but not taking his eyes from the vultures. A few flaps of their wings allowed them to glide on successive air currents a quarter-mile at a time

Formerly a district game biologist with the Virginia game commission, the author is now working on his doctorate at the Ohio Cooperative Wild-life Research Unit, Ohio State University, Columbus, Ohio.

and ever nearer. We began getting the camera ready, for we wanted not only to capture a vulture if we could, but to examine it, tag it, test the new eyeball technique we were trying, and also get some close-up shots of vultures.

Chances for success seemed great now, for only half the day was gone and surely they would feed before nightfall. They began circling when they came directly over us.

My interest in vultures had developed some years before when a veterinarian and I were called to examine a live cow that had been attacked by the large birds. The cow had suffered extensive damage giving birth to a calf. The calf died and the cow, unable to rise, was viciously attacked by vultures. Called too late and unable to do anything for the cow, the veterinarian mercifully killed it.

The farm incident was my first direct contact with vultures, the damage caused by them. or the careless type of people who suffer most from their assaults on livestock. I began a study of the vultures of Virginia to discover what was their population status and just how widespread was the grisly damage I had seen caused to living animals. I was also curious about what part vultures might play in the spread of livestock and wildlife diseases. To obtain answers, I needed an effective, economical, and portable technique for capturing, examining, and tagging these birds.

Our necks were sore now from looking straight up through the camouflaged gauze netting that covered peepholes in the top of the blind. We hardly dared to move, for we both had heard of the telescopic sight of these birds. Two hours passed in silence as we watched. The birds circled, now close, then again almost out of sight.

Ben Snyder was exasperated. We had been in the blind since 10 a.m. and Ben was a doer, not a sitter. The evening before he had jumped at the chance to catch a buzzard. He hadn't even asked. "What do you want a buzzard for?"

Now, with the birds at a distance for the moment, we could relax a little. I told him about the damages vultures were causing to live farm animals in more than half the counties of the state. He, too. was sickened by the stories of snipped off ears and tails, pecked out eyes, and torn navels of pigs and lambs. Attacks upon cows while calving had resulted either in dead calves or cows so torn that farmers had been forced to kill them.



Commission Photo by Kestelou

Vultures, fighting for survival, may kill weak and dying animals because of a shortage of carrion.

"What do you figure could be causing all the trouble?" Ben asked. "What's so different about buzzards now that they should start liking live meat better than dead stuff like they're supposed to eat?"

I couldn't say for sure, but I guessed that vultures were being hard put these days to find food. Better medical care and farming methods, I told Ben, have cut numbers of dead livestock in the fields. Rendering companies now do most of the scavenging; what's left over, the law says, must be burned or buried. The vultures, I suggested, are fighting for survival in some areas, and when they can't find dead things, they go for the next best—the weak and dying.

After midday we decided to eat lunch as the vultures still remained high. Lunch 20 feet away from a very dead dog is no pleasure. The atmosphere was that of the odors of hot canva3, sweat, fresh bread, red clay, with background music of forest birds and blow flies. Suddenly we realized that the vultures had disappeared.

We hadn't had our eyes off them longer than it takes to pour a cup of tea and unwrap a sandwich. Yet they



Photo by Allan D. Cruickshank from N.A.S.

Virginia has two species of vultures, or "buzzards." The turkey vulture pictured here has a red head, while the black vulture has a black head and neck.

were gone. We forgot lunch and searched the sky. Twenty minutes later, inexplicably, they were back. Several times during the rest of the day this same uncanny disappearance took place. At one moment you would see four vultures at widespread points of a circle in the sky. The next moment, if you so much as glanced away or made a close study of one through binoculars, another of the birds, or all of them might be gone. Then, when you were sure the show was over, back they would come again.

Now, all at once, there was a rush of air above us and a vulture glided over our blind no more than 20 feet above us. This was the closest I had ever been to a live vulture except those I had seen from a car window along roadsides. Its appearance was startling, and I was caught up by the sound of its wings. A poet had once read to me his poem about an instance in which he came upon three vultures feeding upon a dead man. They immediately flew away, their wing beats sounding like the Greek for "no, no, no": ook, ook, ook, I agreed. The bird sailed above us twice, then disappeared behind the trees surrounding the clearing in which we watched. The other vultures were still high, but now they began to descend.

Ben and I were filled with excitement. "I just can't figure them out," I whispered. "I've read how they're supposed to find their food and nobody agrees. Did you notice how they turn their heads back and forth as they sail over? If that bird wasn't looking around, I'll eat the dog myself. Did you ever see such intent eyes?"

"Never did," Ben said.

"Some people claim that they use their noses. Last year a flock gathered over a taxidermist shop that was boiling rotten bear skulls outdoors in a covered pot. Our dog out there hardly smells bad enough to attract vultures from 10 miles away like he seemed to do this morning."

Ben shrugged, "Don't look at me for an answer. I read somewhere they find their food by the sound of insects around dead animals."

I listened and the buzz of the flies and bees around the dog was easily heard at 20 feet. But miles away? Well, that was another question.

A few times during the morning, cars had passed the opening of the clearing but had not stopped. As the vultures came nearer the clearing, it was obvious that they were disturbed each time cars passed along the country road. I began to have the feeling that the vultures sensed something wrong with this meal. The patient inspection, the long flight, the unexplained disappearances, and the wariness about cars all told the same story.

The rush of air came again even closer as another bird flew over our blind. "Turkey" vulture fits well, for it looks much like its namesake. We saw clearly the naked head and ruff around its small neck that gives the bird a friar-like appearance. Graceful and serene aloft, the vulture had become awkward and sinister at close hand.

The bird slowly circled the clearing, then came to rest on a clay bank 30 yards away. It held its wings outspread for two minutes as if waiting for each feather to fall slowly into its proper place before closing its wings. For eight minutes it sat there on the bank overlooking the bait. A second vulture alighted 15 feet from the dog and began hopping spradle-legged toward it. The vulture on the bank, now preening, took greater interest and flew down toward the carcass. They approached each other and the carcass with open bills, hissing loudly. They were within five feet of the dog. Ben and I were busy trying to record everything we could about these great black creatures.

Suddenly, they stopped their advance and turned aside, ran a few hops, and flapped off wildly. Ben and I stared at each other, amazed and disappointed. It was too late to expect them to return after having been spooked from the bait. A car door slammed and we heard footsteps. We crawled out of the blind to see the local game warden approaching, as surprised as we were. He, too, had been watching the vultures, as they frequently feed on game killed illegally but not taken by poachers. There was nothing we could do now. That long vigil was over.

It was almost dark before we packed up and left the area. Ben said, "You know, you can hardly blame vultures for the damage they're doing." pointing to the high circling quartet drifting as a group to their secret roost.

"No you can't," I admitted. "Man's competing with them, and like he has done in the past with other birds and animals. he'll probably win out." As we watched them, I think we both wondered how long this great bird would be a part of our sunsets.

OCTOBER, 1961 9



The popularity of shooting preserves may be attributed to expanding human population, increased amount of posted property, guarantee of a game kill, longer season in which to work the dog, and the "virus" which infects all hunters as the hunting season draws near.

Shooting Preserves in Virginia

By HAL W. MYERS, JR. District Game Biologist, Amherst, Virginia

Commission Photos by Kesteloo

THE TERM shooting preserve has become familiar to hunters of this country in recent years, but there still seems to be some confusion as to what is implied by the term. Shooting preserves are generally privately owned and operated areas on which pen-raised game is released for hunting, and a fee is usually charged for the hunting privileges. These areas operate under a license, and are permitted such exceptions as longer seasons, no bag limit, and hunting in the snow.



Visit one of the preserves now in operation, and perhaps you will find the solution to that hunting urge which tortures you constantly before, during, and after the general open hunting seasons.

Shooting preserves were made possible in Virginia by legislative enactment in 1950 upon request of some sportsmen who were anxious to shoot pen-reared species without endangering native game populations. The Commission of Game and Inland Fisheries has been granted the power to regulate and supervise these areas. During the 1960-61 season, 43 shooting preserve licenses were issued in the State. Virginia is one of 40 states in which regulated shooting grounds are in operation.

To obtain a shooting preserve license in Virginia, certain rules and regulations must be observed for safeguarding both the operator and wildlife. This license is issued the operator at a fee of \$5.00 per year on areas up to 500 acres, and \$10.00 when in excess of 500 acres. Further insight into shooting preserve operation may be revealed by a short review of some of the pertinent regulations:

- The pen-raised game species which may be used are bobwhite quail, coturnix, mallard duck, ring-necked pheasant, and turkey.
- The season extends from October 1 to March 31, with no bag limit, and birds may be hunted in the snow.
- The area shall have a minimum of 100 acres and a maximum of 750 acres, which must be owned or under lease by the operator.
- Minimum release requirements per year:

Bobwhite quail — 3 birds per acre
Coturnix — 1 bird per acre
Mallard duck — 300 birds per preserve

Ring-necked pheasant — 1 bird per acre

Turkey — 1 bird per acre

• The boundary of the area shall be surrounded by a



Shooting preserve birds don't just fold up because you fire the gun; you have to "put it on 'em."

fence or a single strand of No. 9 wire or equal fastened at breast height, and signs must be placed not more than 50 yards apart which designate the area as a "Regulated Shooting Preserve."

All persons hunting on the area must have valid hunting licenses. Hunting of game species not authorized by the license shall conform to the general hunting seasons and bag limits.

There are other rules and regulations pertaining to the handling of game, records, and reports which apply to these areas. This, along with the expense of operating a successful preserve, should assure the public that our native game populations will not be eliminated. Many operators today feel that they are operating at a loss due to expenses including raising and holding birds, low percentage of re-



A minimum of three bobwhite quail per acre per year must be released on preserves where bobwhite are used. There are different release requirements for other species.

covery of released birds, maintaining kennels and lodge facilities, and loss of business because of weather conditions. Of course some native game will be shot on these areas, but let us not forget that there is a limit to the normal native population per acre, and also that the native population will tend to shift its range from an area where there is heavy hunting pressure. There is no doubt that hunting of pen raised birds absorbs the pressure that our native game would get otherwise from this same segment of hunters. Operators report that less than one half of the game released is bagged.

There are two classes of shooting preserves that operate in Virginia: commercial and non-commercial. The commercial preserve is open to the public, and the customers more or less regulate the size and type of the operation with their hunting requests. These preserves are usually located within short drives of heavily populated areas, because the majority of shooting preserve customers are from cities of 50,000 are more. The non-commercial preserve does not depend upon the paying customer for its existence, but is usually operated by a club on a closed membership basis. The same operation regulations apply to both classes.



Some operators feel they are operating at a loss because of expenses which include the raising and holding of many birds, such as the ring-necked pheasants shown here.

There is no standard fee system on preserves, and the charge varies according to what the customers demand and what the preserve has to offer. The charge may be based either on the number of birds released or the number killed. Some operators charge a flat rate per day, which includes lodge facilities, guides, dogs, and the guarantee of a number of birds. The average charge on these areas is around \$5.00 per bird on ring-necked pheasant and \$2.00 per bird on quail.

Successful shooting preserves strive to make shooting of pen-raised game as natural as possible and usually carry out intensive management practices to provide food and cover. Various types of plantings of food patches and field borders are used to hold released birds in close until flushed and to provide for birds not bagged. It is also essential to provide the hunter with game that presents a natural target, which means producing healthy. well-conditioned birds. Even though this is a "put and take system" of hunting, they don't fold up just because you fire the gun; you have to "put it on 'em."

"The National Directory of Shooting Preserves" and the Commission's Rules and General Information may be obtained from the Game Commission in Richmond.



Stage game warden Bob Crigler found this large, nut-producing American chestnut on the eastern slope of the Blue Ridge in Madison County.

The American Chestnut

By MRS. FRANK D. WILLIAMS, JR. James River Garden Club Richmond, Virginia

CC A LL words about the American chestnut are now but an elegy for it." So begins the description of the tree, which, in Virginia in the early 1900's, made up 25 percent of her forest stands, the timber of which was used for tannin extraction, lumber, poles, ties, mine props, piling, fence posts, cordwood, and pulpwood. The disappearance of the chestnut tree was a catastrophe to our wild. life, for its nuts, remaining sound through the winter under a layer of fallen leaves, had always provided abundant food for squirrels, deer, bear, and wild turkeys. (The rangers report that this important food source has not been replaced; only mountain laurel and rhododendron, beautiful but not nourishing, now grow where chestnut trees once flourished.) The mountain farmer felt its loss severely, for it was his custom to turn his pigs and other livestock into nearby chestnut groves in order to fatten them, and in many cases the chestnuts, gathered and sold in market, were his only source of "eash money."

After reading the article describing our American chestnut tree in Peattie's Trees of Eastern and Central North America, it would have seemed easy to have put the whole thing aside as too depressing to read further. How discouraging and tragic an effect Endothia parasitica, the chestnut blight, an oriental fungus native to Japan. China, and Korea, had upon this important tree! The fungus was brought here before we had a plant quarantine law, and, as is often the ease, proved much more virulent here than in its native habitat. First recognized in 1904 by a New York biologist, it spread like wildfire through our eastern mountain ranges, until in 1920 scientists were certain that every American chestnut tree was doomed. (It is not only harmful to this species of tree but also attacks, less severely, the chinquapins, the European chestnut, and the post oak; it grows and bears fruit on several species of oak trees, on the red maple, the shagbark hickory and the staghorn sumae.)

Since that spring afternoon when I, surrounded by encyclopedia, botanical dictionaries, and newspaper clippings, almost lost the curiosity I'd had about my subject, it has been remarkable how often the topic has sprung up. On every drive our family has taken this summer near our home

Reprinted with permission from the July-August 1961 issue of The Garden Club of Virginia Journal.

in the "valley," on the Blue Ridge parkway, and down into the beautiful North Carolina mountains, we have seen, the rangers have pointed out to us, and we have read in the guidebooks of evidences that the chestnut tree still exists. The blight, a sticky growth, enters a crack in the mature bark and gradually encircles the trunk, thus killing the living tissues which conduct food and water to the branches and leaves. Usually the more protected root systems of these huge trees are not attacked by the fungus, and year after year these roots send up sprouts only to have them killed also. For many years after the trees are blight killed, the sprouts rarely attain any size at all, but as the blight fungus spores become fewer, the sprouts survive longer. In Virginia some sprouts have reached a diameter of five inches or more and even, in some of our western Virginia counties, have been producing nuts for several years! Certainly, as long as this struggle for survival keeps on, we may continue to hope (too optimistically, perhaps) that the tree will outlast the fungus.

In the meantime, the search for a substitute, with as many of the qualities of the American chestnut as possible plus the necessary blight resistance, goes on. In 1936 dozens of different strains of ehestnut trees, including many from the orient, were set out in the Pedlar Ranger District of the George Washington National Forest near Buena Vista, Virginia. Today, after 24 years of careful cultivation, selection, protection, and observation by the Bureau of Plant Industries and the U. S. Forest Service, the Department of Agri-





Game biologist Jim Engle checks an experimental chestnut planting on the George Washington National Forest. At right are the nuts, burs and leaves of the new Chinese variety.

culture is able to recommend the hybrid Chinese chestnut for planting in Virginia and other temperate zones, provided competing undergrowth can be controlled, as these trees are not able to endure shade for more than two years after planting and still retain their blight resistance. The hybrid Chinese chestnut trees have been grown most successfully in orchards where the soil is well drained and slightly acid. but when planted on poor or rundown land, their susceptibility to the blight increases and they eventually die. Therefore, it seems to me that although our scientists have produced a tree which, if pampered, is suitable as an ornamental, or for orehard planting, Mother Nature and the amazing continuing reincarnation of the old blighted chestunts still seems ahead in producing forest and woodland plantings. Let's wish them both success!

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CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

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GAME COMMISSION SETS WATERFOWL SEASONS, BUYS BOAT LANDING. The season on ducks, coots, geese and brant in Virginia this year will open at noon standard time on Friday, November 10, as a result of action taken by the Virginia Game Commission in Richmond on August 21. The open season on geese and brant will run 60 days. ending on January 8. Because drought in the prairie states this summer drastically reduced duck breeding success, however, the duck and coot season will run only 40 days, ending on December 19.

Bag limits will be as follows: Ducks, 3 a day (not to include any canvasbacks or redheads and no more than 2 wood ducks, 2 black ducks, or 1 hooded merganser), 6 in possession after first day (not to include any canvasbacks or redheads, and no more than 2 wood ducks, 4 black ducks or 1 hooded merganser); coots, 6 a day and 6 in possession; Canada geese, 2 a day and 4 in possession; and brant, 10 a day and 10 in possession. Shooting hours after opening day will be from sunrise to sunset.

In other action, the commission approved the purchase and development of two acres of land on the South Fork of the Shenandoah River, five miles south of Front Royal, for a public boat landing and sportsman access area.

NEW DIGEST LISTS VIRGINIA CAMPSITES. Over 1,000 public campsites throughout Virginia are located and described in a new pocket-sized digest just published by the State Game Commission. The salmon-colored, six page "Virginia Public Campsites" leaflet lists tent and house trailer sites at state and national parks, national forests, federal reservoirs and other public and private areas, and Appalachian Trail lean-tos as well. Addresses to which to write for further information are included. To obtain a copy, simply drop a post card to Box 1642, Richmond 13, requesting "Digest E-10."

GAME COMMISSION ADDS NEW FISH BIOLOGIST. Graduate zoologist Richard Lee Applegate of Carbondale, Illinois, has been employed by the Virginia Commission of Game and Inland Fisheries to serve as district fish biologist in the Shenandoah Valley. Applegate, 25, obtained his master's degree from Southern Illinois University in August, and has worked part-time as a research assistant for both the Cooperative Fish Research and Management Laboratory at Carbondale and the Illinois Natural History Survey at Urbana. Married and the father of one son, he has been working out of Harrisonburg since September 1 on trout and smallmouth bass research and management projects.

GAME COMMISSION BACKS IZAAK WALTON LEAGUE PROGRAM. A do-it-yourself program to restore landowners' confidence in America's hunters will be sponsored this fall for the fifth consecutive year by the Izaak Walton League of America, a national outdoorsmen's organization with several thousand Virginia members. Called "Hunt America Time, the program carries the slogan, "Respect private property--Save public hunting." The main objectives of the program, as outlined by Alden J. Erskine, national IWL president, are to convince the landowner that more hunters, through the "Hunt America Time" program, will respect his private property, and to tell the hunter that if he respects the private property of the landowner, there will be more property available, as time goes on, to him for public hunting.

Executive Director Chester Phelps said that the Virginia Game Commission will aid in any way possible the aims of this program and urges all sportsmen to follow the threepoint pledge: 1. to be law abiding; 2. to respect the rights and property of others, and 3. to be careful with fire and firearms.

CCTOBER, 1961 13

Public Schools Teach Boat Safety

Text and Photos by GEORGE H. HARRISON

TIRGINIA'S 80 boating accidents and 24 deaths on the water during the state boating law's first year of existence demonstrate the crying need for boat safety education. The city of Norfolk is answering this cry by teaching boating safety in its public schools. Greyson Daughtrey, head of Norfolk's health and physical education program, launched this revolutionary course four years ago as part of his physical education program "package." Every eighth grader in Norfolk's public schools is required to take the boating safety course before graduation. Each year more than 5,000 Norfolk eighth graders learn the skills of operating boats and boating equipment in the safest and easiest manner. This pioneering public school course will undoubtedly have a great influence on lessening the number of boating accidents in Virginia's most popular boating area.

The three-week boating safety course is run simultaneously in all Norfolk junior high schools. Textbooks are difficult to find because this is such a new idea in school instruction. Several of the leading boat and motor companies have donated textbooks, and local dealers have loaned boats and equipment to each school for use in this course. Starting next spring, the Game Commission's Motorboat Owners Guide will be distributed to the students to explain the legal requirements for motorboat operation in Virginia.

The U. S. Coast Guard Auxiliary in Norfolk helps teach the course by providing speakers to explain the subject material.

In addition to the boating safety course, the Norfolk eighth graders are required to take advanced swimming. Each student learns to swim in the fourth grade, and

Instructors Lynwood Manuel (right) and Mrs. William Lyons are shown conducting a boat safety session at Patrick Henry Junior High School in Norfolk. Their final week of instruction is devoted to the weather and how to cope with it, the proper use of a boat trailer, the fun of boating and the way to proficiency. Do's and don'ts of boating safety are explained, too. Students are then tested and graded on their knowledge of boats and boating safety.

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imming further prepares them to meet the ne water.

tblic school officials feel that they are not their students boating safety, but that this is carried home and passed on to parents rested in water sports. It will therefore be valuate the great effect that the Norfolk ing safety crusade will have on Virginia's ng community. One thing is sure: In total olk has certainly earned the lowest student in the State.



OCTOBER, 1961







At far left, Roosevelt, Wallace, Ickes, Byrd and others plan the parkway at Big Meadows meeting August II, 1933. At left is the view toward Grandfather Mountain from the parkway's Flat Rock Overlook.

Blue Ridge Parkway 25 Years Old

By GEORGE KEGLEY
Times Staff Writer
Roanoke, Virginia

Photos Courtesy National Park Service



'VE been wonderin' what that mountain's fur and now I know it's fur to build a road on," said a resident of the North Carolina mountains in the 1930's. He had just seen the start of construction work for the Blue Ridge Parkway on a mountain that seemed too steep for anything else. Now, many mountains later, the parkway has celebrated its formal 25th birthday.

On June 30, 1936, the 74th Congress passed H. R. 12455. a hill giving the parkway statutory reality. It had been conceived during a conversation between U. S. Senator Harry F. Byrd and the late President Franklin Roosevelt at Big Meadows on the Skyline Drive on August 11, 1933. Why not, Byrd and Roosevelt asked, build a scenic mountain route to connect Virginia's Shenandoah National Park with the Great Smoky Mountains National Park in Tennessee?

A quarter-century later, parkway construction has cost \$70 million and it's expected to amount to a total of \$96

million when it's finished in the next five to 10 years.

Beginnings of a parkway movement in North Carolina go back before World War I. A route from Roanoke to Greenville, S. C., was charted by the North Carolina Geologic and Economic Survey and four or five miles were graded before the job was stopped by the war. This small section was later incorporated into the parkway.

Once designated as the Appalachian National Parkway, it was even known for a time as The Parkway to Connect the Shenandoah and Great Smoky Mountains National Parks. But the late Secretary of Interior, Harold Ickes, named it simply the Blue Ridge Parkway in 1935. Some North Carolinians refer to the drive as "the Scenic" today, however.

Now attracting well over five million travelers annually, the parkway was voted the country's "most scenic highway" by the National Association of Travel Organizations two years ago.

Reprinted from Roanoke Times, July 9, 1961.

As the 469-mile parkway recognized its anniversary, it has 397 miles of roadway completed, 36.5 under contract, and 36 more not yet contracted. The important unfinished sections are Roanoke's 15-mile missing link planned to start in 1963, 11 miles around Asheville and 5.5 miles at Grandfather Mountain in North Carolina.

Sam P. Weems, superintendent, and Ed Abbuchl, land-scape architect, recall the early days when the parkway was just a series of lines on the drawing boards. Abbuehl began work on the plans in 1934 and Weems was borrowed from the Federal Land Bank of Baltimore as an appraiser for recreation areas in 1935. He resigned his bank job and joined the burgeoning parkway staff seven months later. Stanley Abbott was acting superintendent in the early years, and Weems was named superintendent in 1944.

First dirt was turned just south of the North Carolina line September 11, 1935. Construction began from Adney Gap atop Bent Mountain southward in 1936 and in the Peaks of Otter section in 1939. Roughly half of the con-



Now attracting well over five million travelers annually, the Blue Ridge Parkway was voted the country's ''most scenic highway'' by the National Association of Travel Organizations two years ago.

struction had been finished by World War II. During the war the parkway had only a small staff and some contracts were shut down. War permits were issued to users. Mica and other essential minerals and chestnut timber for tannic acid were hauled out of the mountains over the drive.

Construction costs have soared. A section of the drive built south of Adney Gap at \$20,000 a mile in 1937 now would cost from \$100,000 to \$125,000, Weems says. Plans have changed through the years. One early proposal would have taken a parkway spur to Natural Bridge. Weems recalls that some Roanokers talked of a parkway spur to Mill Mountain as early as 1938.

As construction has been accomplished, emphasis in the parkway program has moved toward an interpretive program. The parkway's peak summer staff of 350 includes four fulltime and 13 seasonal naturalists. These naturalists give evening talks and lead nature walks at Doughton Park. Price Park and Crabtree Meadows. They also present the history of each area and describe flora and fauna at visitor centers, museums and self-guiding trails.

Weems has seen sweeping changes in life along the parkway. "The contrast in the economy of the countryside has been revealing. When we started, very few houses were painted, buildings were run down and people were in desperate need of employment. Today, however," he says, "you see neat houses. People take more pride in erosion control and farm practices and improving their communities. And a lot of city people have summer homes along the parkway."

What is the parkway's future mission? The biggest project looming ahead appears to be an extension into Georgia. But Weems also points to these needs: "We ought to go back and fill out our activities, complete concession facilities and recreation areas; fill out adjustments in right-of way; step up the interpretive program; finish visitor centers; have enough rangers for an 18-hour day instead of 8; and give visitors better protection at campgrounds and other points."

For additional information on the Blue Ridge Parkway, contact Donald H. Robinson, Chief Park Naturalist, Blue Ridge Parkway, P. O. Box 1710, Roanoke, Virginia.

Some rundown buildings along the parkway were taken over
and restored to show
how early Blue
Ridge settlers lived.
At right, old Mabry
Mill before and
after restoration.







Peter Massmann, son of the author, enjoys fishing for stripers, or rockfish, near the York River Bridge. This fish, a small one, had to be returned to the river.

ROCKFISH

Text and Photos by WILLIAM H. MASSMANN
Associate Marine Scientist, Virginia Fisheries Laboratory
Gloucester Point, Virginia

N a fall day the sight of a great flock of gulls screaming as they wheel and dive in a confused melee over blue Chesapeake waters is exciting. Chances are good that in waters beneath the gulls schooling rockfish are slashing through a school of young menhaden, gorging themselves on the mass of small fish. Driven close to the surface, the menhaden are preyed on from above by the gulls who also feed on fragments left unconsumed by the rockfish. Soon, to add to the confusion, fishermen arrive on the scene to troll or cast into these agitated waters. When rockfish are feeding like this, the chances are good that many will be landed before they suddenly disappear, to reappear at another spot or not to reappear at all.

Rockfish, which have been widely scattered in shallow waters of bays and creeks during hot summer months, tend to congregate in fall and move offshore, where they intercept schools of small fishes migrating seaward and gorge themselves before the cooling waters drive them into deep water.

For sheer sport, few game fish in Chesapeake Bay can compare with rockfish. Taken in practically any season and by almost as many different methods of fishing as anglers have been able to devise, the rockfish is among the most important of Chesapeake Bay sport fish. Trolling a white bucktail, often with a strip of pork rind added, is the most popular method of catching rockfish during fall months. This is done close to shore, near jetties or old fish net poles earlier in the season and in deeper waters when the weather becomes cold. Fishing near the piers or pilings of bridges, such as those over the James. York, Piankatank and Rappahannock rivers, is generally productive for rock-

fish, as their name implies, favor the vicinity of rocksman made or natural.

During summer months, floating a soft or peeler crab in shallow waters in late evening is often successful if the location and the tide are right and in winter deep trolling often produces good results. Rockfish are also caught still fishing with peeler crabs or blood worms. Night fishing from lighted piers often results in large catches. The advent of spinning tackle has added to the variety of methods for catching rockfish for they may be taken by casting from shore or from a skiff. Joe Brooks, a well-known Richmond angler, maintains that catching rockfish on a fly rod is excellent sport.

Further north along the shores of Long Island and Cape Cod, rockfish or stripers are taken in the surf on large wooden plugs. Eels are also a favored bait in northern waters. Similar lures are used in the surging water of the St. John River, New Brunswick, where Fundy tides create strong, turbulent currents near the rocky river mouth.

Although rockfish may be caught by a variety of methods, skill is still the most important factor for successful fishing. The best fishermen are those that know the hot spots in their particular area and constantly check on the movements and bait preferences of the fish. And most fishermen agree that nothing is tastier after a good day of fishing than broiled or baked rockfish.

Rockfish are found in Atlantic waters, from the St. Lawrence River in Canada to the St. Johns River in Florida. Right in the center of this range is Chesapeake Bay, probably the most important rockfish area along the entire coast. In Chesapeake Bay, conditions for spawning, survival and growth are most favorable. Not only are large numbers present within the Bay but Chesapeake waters constitute the most important spawning and nursery area for rockfish along the Atlantic Coast. Tagging studies have shown that many of the stripers from the coastal waters of middle Atlantic and New England states have originated in the Chesapeake. Spawning populations exist in the St. Lawrence and Hudson rivers and in most large rivers from North Carolina south, but none of these contribute to the large numbers of fish that emigrate from Chesapeake Bay.

During some years spawning, hatching and survival of young rockfish is known to be excellent while in other years the brood may be almost a complete failure. Among the most important questions to be solved by marine biologists is the cause of these differences in survival. Weather during the spawning season may be important. Although the causes for differences in spawning success are not known, the effects certainly are. A series of poor years results in poor fishing. Conversely, the advent of a good year may give rise to a supply of rockfish that may dominate the fishery for several years. Such a group of fish, the result of excellent reproduction and survival in a single year, is often called a dominant year class. In the Chesapeake, fortunately, rockfish spawning and survival have been good for the past several years. To predict fishing success for future years, marine biologists may sample favorite rockfish nursery grounds with small minnow seines each year. The relative numbers of fry taken may be used as an index of spawning success.

The rockfish, more properly known as the striped bass but frequently called striper or rock, like the salmon and shad spawns in fresh water but generally spends most of its life in salt or brackish water. Spawning occurs in late April and May in the James, Chickahominy, Pamunkey, Mattaponi and Rappahannock rivers. The eggs, slightly heavier than water, are swept along in tidal currents until they hatch in about two days. The tiny fish, or larvae, less than one-fifth of an inch long at hatching, are well supplied with yolk on which they subsist until they begin to feed. They drift helplessly in the water for almost two weeks by which time they have developed a mouth and small fins.



The author and fellow biologist F. Wojcik tag rockfish to determine their movements, or migration routes.

The larvae then feed on the myriad of tiny aquatic animals, known as plankton, and grow rapidly. By mid-summer they are an inch in length and look much like adult fish. At this time they move inshore, where they congregate near gravelly beaches and points where strong tidal currents are present. Even at this small size rockfish show a preference for waters that have some turbulence.

Growth is rapid during the first few years. One-year-old fish are 3-5 inches in length; two-year olds, 8-10 inches; three-year-olds, 12-16 inches; and four-year-olds, 16-20 inches. A thirty-six inch fish weighing from 15 to 20 pounds may be 10-14 years old. Some larger rockfish have been known to reach an age of 20 years, Determination of age on older fish is extremely difficult, however, It would be interesting to know the age of some of the largest rockfish captured. Fifty-pounders are not uncommon. The largest landed by hook and line was 73 pounds. This fish was dwarfed by several caught commercially that weighed 125 pounds each and probably exceeded 6 feet in length.

The determination of age of rockfish is not only interesting but most important. Much can be learned concerning the condition of the fishery by systematic sampling of rockfish scales for age determination. Although anglers prefer to catch the larger and older individuals. for future fishing success, substantial numbers of small, young fish are important.

Young rockfish gradually spread out from the nursery areas during their first summer. Most move downriver to salt water. Until they are two years old they rarely leave the river system in which they were hatched. Rockfish tagged in the James, York, and Rappahannock rivers have shown definite seasonal movements. In winter the fish remain close to the deeper channel waters where they concentrate during cold weather. In spring the fish spread out, many to freshwater spawning areas upriver and others into shallow water throughout the river. In summer the fish are widely dispersed. A few move upstream in fresh water. More, however, enter the Bay but seldom do they migrate far from the river in which they were spawned. James River rockfish may be found throughout Hampton Roads and along the southern shore of the Bay. York River fish are found in Mobjack Bay and some from the Rappahannock move into the Piankatank. In fall there is a gradual migration back to wintering grounds.

More than 90 percent of the rockfish apparently never leave the vicinity of the river in which they were spawned. A few individuals are travelers, however. Some of these move into Maryland waters. Conversely, a few Maryland fish move south. Some of the wanderers leave Chesapeake Bay and head north along the coast. Rockfish tagged in Virginia waters have been recaptured in coastal waters from Delaware to Massachusetts. One individual was recaptured in the Saco River in Maine. Although the rockfish that move out to sea make up only a small proportion of the fish from the Bay, these fish furnish much of the fishing further north. Most of these northern migrants return to Chesapeake Bay in fall but some remain north for the winter. We do not know why some leave the Bay and others do not, or if the same individuals leave each year. Why is it that rockfish spilling over from Chesapeake Bay make up such a large part of the fisheries farther north? Are present catch regulations adequate in preserving our spawning stocks? The answers to these and many other important questions may be gotten only from research.

Deer Crop Damage Control

By JACK V. GWYNN Game Research Biologist Charlottesville, Virginia

IRGINIA'S deer populations have been increasing literally by leaps and bounds since World War II. The preference by deer for certain garden, farm and woodland crops has reduced many a landowner's income by various amounts depending on the number of deer in an area and the proximity of the crop to good deer cover.

Efforts to control deer crop damage have centered around (1) frightening devices, (2) repellents, (3) shooting permits, and (4) fences. Except for the deer-proof fence, these methods of damage control work best where there are moderate numbers of deer and a brief period when damage is done. As deer populations increase the period when damage occurs lengthens and the results of damage control methods become less satisfactory.

Frightening Devices

Frightening devices such as firecrackers, scarecrows, buzzers, lights and reflectors are of little value beyond the first few days of use. Under certain circumstances such as low deer numbers, good natural food conditions or small areas needing protection, these devices may serve their purpose. Many of these devices require daily attention and most become expensive if prolonged use is necessary over large areas.

Aluminum tags or strips of foil attached around a garden at three-foot intervals proved successful to one Virginia gardener. Firecrackers, fuse ropes for igniting firecrackers at various intervals, a price list and other information regarding this technique may be obtained by writing the New Jersey Fireworks Mfg. Co., P.O. Box 227, Elkton, Maryland. A mechanical exploder designed to give off loud explosions at varying intervals may be purchased from the Dobson's Implement Company, Brandywine, Maryland. It can be used with either carbide or an acetylene tank and costs approximately \$60.00.

Repellents

Repellents giving a disagreeable taste to plant parts have been found in several states to reduce damage to young fruit trees by approximately 66 to 75 percent. These repellents are expensive, varying from eight to twelve dollars a gallon with dilutions around 40:1 for row crops and 4:1 to 1:1 for winter orchard protection. Costs of \$5.50 an acre for row crops and \$0.30 per three-year-old apple tree have been estimated. In areas where spraying must be repeated these costs would be higher. A deer-proof fence prorated over the effective life of the fence would be cheaper and furnish better control in many instances.

Two test repellents that have been tested against deer in orchards are Z.l.P. and Tat Go. Information concerning availability, use and cost of Z.l.P. may be obtained from the B. F. Goodrich Chemical Company, Rose Bnilding, Cleveland 15, Ohio. Tat Go may be obtained from O. E. Linch



Commission Photos by Kesteloo

Refuge supervisor W. H. Taylor and *Wildlife* editor M. R. Cutler look over deer damage to soy beans planted at the Commission's Hog Island Waterfowl Refuge in the James River. The insert shows how leaves are completely eaten off.

Co., Inc., Clifton, New Jersey. Current prices are approximately \$8.50 per gallon in 50-gallon drums. Tat Go should not be used on plant parts that are to be used for food or feed.

Repellents producing disagreeable odors have been reported as nusuccessful in one state with a high deer population. An odor repellent technique developed in Oregon is presently being tested in Virginia. The method consists of filling small bags with tankage and tying them, one per tree, at deer nose level. Only young apple trees have been tested thus far. Initial tests have shown promise but further testing at different population levels is necessary since areas with light deer densities may give better results. The three-inch by five-inch "AA" grade tie parts bags may be obtained from the Millhiser Bag Co. Inc., P. O. Box 1117, Richmond 8. Virginia, A tankage with a strong odor should be used.

An odor repellent which the manufacturers claim effective if applied at one month intervals is the College Brand Magic Circle Deer Repellent. Information concerning this repellent may be obtained from the J. C. Ehrlich Company, Agricultural Chemicals Division, 30 North 8th Street, Reading, Pennsylvania. This repellent has not been tested in Virginia.

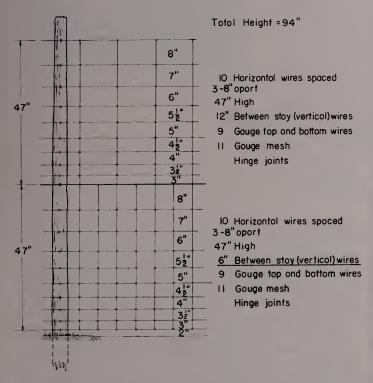
Shooting Permit

The shooting permit is at best a temporary measure that can be applied until something more effective can be done. Permits to shoot deer may be obtained from the Commission of Game and Inland Fisheries whenever a landowner can show that he is suffering damage. Many landowners feel, however, that the permit is a disagreeable solution. It is most successful when only one or a few deer are doing the damage. When deer are numerous such a control method becomes time consuming, requiring much patience and perseverance.

Fencing

Fencing to control deer damage is initially the most expensive of all the control methods. Prorated over the effective life of the fence, however, the annual cost of fencing compares favorably with present day repellents. In many

VERTICAL WOVEN WIRE DEER PROOF FENCE



instances the annual cost is less while at the same time the protection is better. Experience in Virginia and other states with over 50 types of electric, woven and barbed wire fences have produced a single fence that is recommended as effectively deer proof (see diagram). The cost of this vertical woven wire fence is estimated as follows:

Estimated Cost of Vertical Woven Wire Deer Proof Fence

	(1)01)
Labor	\$.75 per rod
Posts	1.20 each
Wire	3.00 per rod
Staples	.05 per rod
Total	\$5.00 per rod

Lighter wire with stays farther apart than that recommended would be cheaper to build but deer would soon break or spread the wires until they could get through.



New Symbol for National Forests

Five loops in the shape of a tree form the central element of a new symbol for the National Forests.

The U. S. Department of Agriculture says the five loops signify the five resources of the National Forests—water, wood, wildlife, forage, and recreation. A continuous line connecting them symbolizes the interdependence and interrelationship of the five resources. The symbol, Forest Service officials said. is a means of explaining the management principle applied on the National Forests as directed by Congress under the Multiple Use Act of June 1960.

The design is based on an ancient symbol for wood. The original symbol had three circles on top of a tree trunk.

The new symbol is the first one especially designed for the National Forests. It's one that will be seen often in the months ahead on maps, publications, and posters.



Glenn R. Allison, recently named assistant regional forester of the U. S. Forest Service's eastern region which includes Virginia.

Allison Named Assistant Regional Forester

Glenn R. Allison of Springfield. Pa., has been promoted to the position of Assistant Regional Forester of the Eastern Region. U. S. Forest Service, at Upper Darby, Pa. In his new assignment Allison will direct cooperative forestry programs with the 14 states in the region, which extends from Kentucky through New England.

A native of Indiana, Allison is a graduate of Purdue University. In 1946, Mr. Allison was employed by the Forest Service in the State of Michigan. In 1950, he transferred to the Eastern Region where he supervised the white pine blister-rust eradication program in Vermont, Massaehusetts, Connecticut, and Rhode Island. Since 1954 he has served in a supervisory capacity in the division of forest pest control at the headquarters of the Eastern Region.

OCTOBER, 1961 21



Bird of the Month:

The Wilson's Snipe

By DR. J. J. MURRAY Lexington, Virginia

ITH the coming of cool weather in October the snipe begin to pass through Virginia on their way to winter in the frost-free parts of the South and in Latin American lands. A fair number of them stop for the winter in eastern Virginia and some even as far west as the Valley. The factor which limits their winter distribution is not cold but the presence of places where the ground remains soft enough for them to feed. In western Virginia such places are mainly found in marshy spots kept open by springs. Snipe migrate across every part of the State.

The Wilson's snipe was named for Alexander Wilson, one of our pioneer American ornithologists. Until recently it was considered a separate species from the common snipe of Europe. Now it is recognized that while it is a separate subspecies it belongs to the same species as the European bird. Consequently in bird books from now on it will be listed as the common snipe.

The most noticeable feature of the snipe is the long bill, which runs to two and a half inches in length, or nearly a fourth of the bird's total length of slightly over eleven inches. The plumage is generally dark, with whitish stripes along the head and long whitish stripes down the back. There is a suffusion of cream-buff on the back and a brighter buff on the neck and upper breast.

In habits as in size it resembles the woodcock, but the woodcock has a somewhat longer bill, brighter colors, and bars across the top of the head instead of stripes along the head. Like the woodcock it feeds by probing the mud with its bill for earthworms and the larvae of insects. The bill is a very delicate instrument with which the bird searches for its hidden food. Apparently the snipe often swallows that food without taking the bill from the mud. Sometimes it feeds in the open on mud flats, but, usually too shy for that, it prefers damp meadows and marshy places.

Where it is common enough the sweetness of the meat and the test of markmanship afforded by its queer flight makes the snipe a popular game bird. When flushed it goes off in a rapid zig-zag flight, crying "scaipe, scaipe." which since it is such a difficult target usually works out in practice as "escape." When it flies to a new spot or alights after being flushed it will almost invariably run a bit to hide in a cow track or behind a tuft of grass and then stand perfectly still. Where several are feeding in the same area and one is flushed, the others usually take flight also.

The snipe rarely nests farther south than central Pennsylvania or northern New Jersey. It nests in the same wet meadows where it feeds, making the nest of grass on the ground. The four eggs, brownish in color and heavily mottled, are very large for the size of the bird. The snipe is about the size of a meadowlark, but its eggs are a third larger. This is always the case with what are known as precocial birds, birds which run about and ean in a measure take care of themselves as soon as they are dry after hatching. Altricial birds, on the other hand, which are born naked, must remain in the nest until ready to fly.





Commission Photo

Virginia youngsters have a wide variety of areas to explore, from mountaintops to sea-

Virginia Youngsters are Fortunate Indeed

Virginia has everything. Aren't we lucky to be able to enjoy it?

The youngsters of Virginia are among the most fortunate people in the world today. Not only do they have all the freedoms enjoyed by other Americans, but they have the privilege of enjoying their freedom in a land of great natural

From the top of Mt. Rogers, at 5719 feet, to the surf at Virginia Beach, young citizens of the Old Dominion have a choice of scenery as varied as the tourist traveling from Canada to Florida. It's all here in Virginia for us to enjoy.

West Virginia is called the Mountain State, but Spruce Knob, West Virginia's highest peak, is nearly 1000 feet lower than Virginia's Mt. Rogers.

Virginia's Piedmont boasts quail hunting as fine as anything the South has to offer. Tidewater bass fishing ranks with the best in the East. Eastern Shore Virginia is developing into one of the greatest sport fishing areas on the Atlantic.

Flowers, birds, mammals, reptiles, amphibians-take your choice. They're all here in Virginia for you, the young people of the Commonwealth.

Young enthusiasm can easily be spent

hiking the Blue Ridge, camping along the lake and river shores, swimming in the surf or in one of the Piedmont's thousands of ponds. Young 4.H'ers and F. F. A. boys can see the results of planting food patches for wildlife on their own farms. They can watch bluebirds, wrens, woodpeckers, and squirrels raise families in the boxes made in their workshops. They can catch fish in ponds and mountain streams which they placed in the water themselves.

It's here for us to use, but to use wisely and unselfishly, to use and appreciate.

With the privilege of using wilderness Virginia comes the privilege of safeguarding it and guaranteeing its existence for the youngsters of the future.

We must first catch the ball, then be prepared to throw it to coming generations. Don't fumble that ball. Hold it tight and give wildlife the help it deserves to carry it through the future.

Virginia has everything. Let's keep it that way!

See That Your School **Enters Wildlife Essay Contest**

Now's the time to remind your school teacher or principal to mail the special post card sent him by the Board of Education which will enter your school in the 15th Annual Wildlife Essay Con-

He may have done so already, but if he hasn't, point out that the subject this year-"Why Legal Hunting and Fishing are Good Conservation Practices"-is a stimulating one, and that





U. S. Coast Guard Photo

Barney Maloney of Arlington, Bill Tennant, Fair-fax, and Keith Angerman, Washington, were selected by the Coast Guard Auxiliary and the Coast Guard League to attend the Ori-entation Week at the Coast Guard Academy, New London, this summer. The boys were given a sendoff by Coast Guard Auxiliary division captain Alvin Stratton and public relations officer Albert Patterson.

there are \$2,900 in cash prizes to be won. This includes a \$700 high school senior conservation scholarship.

Students in all Virginia schools. grades 5 through 12, are eligible. The game commission, which shares sponsorship of the contest with the Virginia Division of the Izaak Walton League, sends law digest display racks and literature packets to each school which submits the official entry card.

Twinkle Toes

Way up in the Blue Ridge Mountains, In a lovely hollow tree, Lives a tiny baby squirrel Named Twinkle Toes, you see. Now Twinkle Toes, he thinks it's fun, To climb way up a limb, And sends the acorns flying down; It's really fun to him, One day as he stood by the brook, He thought he would like a dip; He ran way back, he took a run, He really did a flip. A big bullfrog was standing near, You should have heard him holler: "Do that again, you tiny squirrel, And I'll give you half a dollar." -Mrs. Erving McMichael

Nokesville, Va.



Virginia's "Fish for Fun" Stream Proves Popular

Virginia's experimental "fish for fun" stream—the Rapidan River in Madison County—has already proven that "fishing for fun" regulations can result in more successful fishing per trout stocking dollar than "put and take" procedures, says commission fish biologist Jack Sheridan.

Sheridan, stationed at Culpeper, reports that a two-day-a-week creel clerk tally on the fish for fun portion of the Rapidan, which lies above the lower Shenandoah National Park boundary on the east slope of the Bluc Ridge, revealed that 344 fishermen caught 1,120 fish in 1,285 hours there from April 1 through June 30.

While 545 of the trout caught were native brookies, 549 were rainbows—and only 300 rainbows were stocked in this water. This was possible because only barbless hooks may be used on this stream and all fish caught must be returned immediately to the water.

Although fishing pressure dropped from 139 fishermen in April and 140 in May to 65 in June, fishing success per fisherman actually improved. Trout taken per hour increased from 0.7 in



Charles Warren of Front Royal was one of the fishermen who caught his creel limit of 25 bluegills on opening day of the public fishing in the hatchery near Front Royal. He also caught several largemouth bass.

April and 0.9 in May to 1.1 in June, and the number of trout caught per trip increased from 2.8 in April and 3.3 in May to 4.0 in June. About half of the fish were caught in the national park, the rest being taken in the portion of the stream which runs through the privately owned Ward-Rue Wildlife Area.

Plenty of fish remain in this water, says biologist Sheridan, noting that an electric shocker sampling on July 27 revealed over 500 brook trout present in a 100-yard section of the stream, a map of which is available from the Game Commission at Box 1642. Richmond.

Fishermen Having Field Day at Front Royal Hatchery

Fishermon are flocking to the Commission's Front Royal Fish Hatchery, where several ponds have been opened to public fishing in a three-year experiment designed to determine if a minimum size limit on bass should be recommended for farm ponds. In the first two weeks of the experiment, which began on July 10, 1.379 fishermen were checked in at the hatchery and 3,282 fish were checked out by the creel clcrk, an average of 2.4 fish per fisherman. The catch total included 153 bass and 3,136 bluegills. No tally was kept of the many individuals who took advantage of the "fish for fun" ponds stocked with huge bass, sunfish and bluegills. The hatchery, located just south of Waterlick, which is midway between Front Royal and Strasburg on Route 55, is closed to the public on Mondays.

Virginia Courts Convict 785 of Game, Fish, Boat and Dog Law Violations in July

A total of \$12,507.85 in fines and costs was paid by 785 convicted violators of Virginia's game, fish, boat and dog laws in July. The convictions, resulting from arrests made by state game wardens, included 51 for game violations, 493 for fish law violations, 6 for migratory bird law violations, 162 for boat law violations, and 73 for dog law violations.

New Manager Named for Back Bay

Walter A. Gresh, regional director for the Bureau of Sport Fisheries and Wildlife, Atlanta, Georgia, has announced that Donald R. Ambrosen has replaced Carl S. Yelverton as refuge manager at Back Bay National Wildlife Refuge. In accordance with a standard rotation policy for broadening the experience of technical employees, Yelverton has been transferred to the Delta National Wildlife Refuge in Louisiana as refuge manager of that important waterfowl area.

Ambrosen has had previous management experience at the Waubay Refuge in South Dakota, Lower Souris Refuge in North Dakota, and comes to Back Bay from the Piedmont Refuge in Georgia. He is a graduate of the University of Minnesota, where he received a B.S. degree in Forestry and Game Management,

In addition to managing the Back Bay Refuge, Ambrosen will be responsible for administration and development of Mackay Island National Wildlife Refuge in the Curritnek area, N. C.



On June 17, Steve Denney, son of game warden Blake Denney of Clarke County, caught this carp in Shenandoah River at Watermelon Park. It weighed 27½ pounds and was 39 inches long. He was using 15-pound test line and was one hour landing the fish. Steve is 14 years old and attends Clarke County High School. This is the largest fish of any kind known to have been landed by hook and line in this area for several years.



Ducks Decline; Major Decreases in Two Mid-Continent Flyways

Major declines in duck flights in the Mississippi and Central Flyways and moderate decreases in duck flights in the Pacific and Atlantic Flyways have been forecast by the Department of the Interior following the mid-summer survey of waterfowl production by its Fish and Wildlife Service.

The serious mid-continent waterfowl situation has been caused by a drought of major proportions this year in the southern portions of the three prairie provinces in Canada and in the Dakotas. Because most of the birds from this area go to the Central and Mississippi flyways, the effect is being felt more in these flyways than in the two coastal flyways.

This is the third year of drought on the prairies. In 1959, the waterfowl crop in the prairie pothole region was largely a failure because of the loss of water areas for nesting birds. There was a considerable recovery in 1960 but it was still below normal. This year the situation is worse than it was in 1959, the survey crews report. The number of ponds is down 89 per cent from the peak year of 1955. There was a 67 per cent decrease in numbers from last year to this.

When the prairies are dry, the birds are forced northward. This happened in 1959 and again this year. The low ratio of young to adult birds which was recorded in 1959 demonstrated that when birds which ordinarily nest in pothole habitat are forced northward by drought they produce few young.

It was also pointed out that declining waters this year especially reduced suitable habitat for overwater nesters. As a result, canvasback, redhead and ruddy ducks and coot are again seriously affected by unfavorable conditions for reproduction.

The waterfowl situation and fall flight forecast for the Atlantic flyway is as follows:

Ducks—Average duck population still down substantially from levels of 1953-

56. All sources of information combined indicate a moderate reduction in fall flight this fall as compared with last year.

Geese and Brant—Fall flight at high level, about the same as 1960 and moderately larger than 1959.

Coot-Major reduction.

Game Cookbook

Unless you are practically a professional sportsman, you probably are often troubled about the best methods of cooking game or fish once you have killed it. If you are lucky enough to have a wife who is willing to cook it, she has the worry.

A new book is now available to end this common problem. The Sportsman's Cookbook by Ted Karny tells in clear, simple language what to do with large and small game, wildfowl, fresh and salt water fish from the moment they are killed to the final garnish of each delicious dish. \$3.50, Doubleday and Company, 175 recipes, 202 pp.



Duck Stamp Sales Show Slight Increase

Duck stamp sales for the 1960-61 season totaled 1,727,534, almost 100,000 higher than the 1,628,365 of the previous year, but far below the record of 2,369,940 sold in 1956, the Department of the Interior reports. This is the second straight year sales have totaled less than two million stamps.

Fish and Wildlife Service officials attribute the decrease from the 1956 record sale primarily to the reduction in waterfowl numbers resulting from the prolonged drought in important waterfowl production areas. The modest improvement in nesting ground success in 1960 is reflected in the 100,000 increase in the sale of stamps.

While conservationists and philatelists buy the duck stamp, most of the purchases are made by waterfowl hunters. The record of sales, therefore, is considered the most authentic available index of waterfowl hunters per flyway.

The 1960-61 sales per flyway, with the previous fiscal year's figures in parentheses, follows:

Atlantic Flyway 265.195 (233,246), up 31,949; Central Flyway 383,449 (370,776), up 12,673; Mississippi Flyway 746,643 (707,649), up 38,994; Pacific Flyway 327,204 (310,861), up 16,343; Philatelic Agency 5,043 (5,833), down 790, Sales by States:

District of Columbia	 1,378
Maryland	17,707
North Carolina	21,972
Virginia	15,139
West Virginia	1,743

Fox Hunters Association Holds 1961 Field Trials at South Boston

The Virginia Fox Hunters Association will hold its 1961 Field Trials on October 26-28 in South Boston, Virginia, with headquarters in the John Randolph Hotel, Hound entries for the trials will be taken on Wednesday, October 25, and the Bench Show will be held on Wednesday night preceding the trials at the South Boston Fair Grounds.

OCTOBER, 1961 25

Mourning Dove Status Report —1961

An index to the 1961 mourning dove breeding population was obtained by a call-count survey conducted throughout the United States. Trends in the breeding-population index were calculated for three management units and for hunting and nonhunting states within management units (see table). Trends in the breeding-population indexes from 1960 to 1961 follow: Eastern Unit down 4 percent. Central Unit down 10 percent, and no change in the Western Unit. Long-term trends in the breeding indexes, however, are upward in the Central and Eastern Units. The index for the Western Unit is essentially unchanged from 1953. For the United States as a whole, the 1961 breeding population index is down 7 percent from 1960 and is 30 percent above the 1953 level.

—William H. Kiel, Jr. Branch of Wildlife Research Bureau of Sport Fisheries and Wildlife U. S. Fish and Wildlife Service

Big Deer Contest

The Sherwood Archers of Roanoke are sponsoring a contest for the largest deer killed during 1961 bow season. The prize: Any bow, value up to \$85.00 RULES: 1 Largest deer bagged

RULES: 1. Largest deer bagged (either sex) in weight, field dressed (entrails, liver and heart removed before weighing). 2. Must be bagged with bow and arrow in State of Virginia. 3. In case of tie the earliest postmark entry sheet will determine the winner. 4. Contest runs from October 15th thru October 31st, 1961. All entries must be postmarked not later than midnight, November 2, 1961.

Send \$1.00 contribution along with your name and address for entry blank before October 15, 1961 to: Clinton Western, Secretary & Treasurer, Sherwood Archers, 4041 Virginia Avenue, N. W., Roanoke, Virginia.

SFI Hires Phil Douglas

Henry Shakespeare, president of the Sport Fishing Institute, recently announced that Philip A. Douglas has accepted an appointment as executive secretary to fill the temporarily vacant position on the Institute's executive staff.

Douglas, 43, has been with the California Department of Fish and Game for nearly 13 years. He received his training in fisheries at Michigan State University and at the University of Michigan where he was granted the degree of Master Science in 1948.

Trends in Doves Heard Calling on Call-count Routes, 1960 to 1961

	Est. Dove Habitat (sq. mi.)	Compa- rable Routes	Average Heard per Route and Indexes*				
State			1960		1961		Percent
			Heard	Index	Heard	Index	Change
Md.	9.393	9	17.0	160	15.7	147	7.6
N. C.	44,232	21	27.0	1,194	23.7	1.048	12.3
Tenn.	41,961	24	27.0	1,133	22.9	961	— 15.3
Va.	37,901	10	43.2	1,637	40.6	1.539	— 6.1
W. Va.	16,863	2	10.9	184	11.4	192	+4.5

*From a base year, average doves heard calling per route for each state has been adjusted annually according to the percentage change from the preceding year in counts on comparable routes. The index, expressed in thousands, is the product of the adjusted average doves heard per route and the estimated area of dove habitat.



Photo by William McCarthy
OUTDOOR WRITERS PROVE THEIR KNOWHOW—Jennings Culley, Richmond News Leoder outdoor editor, boated the fine, 35-pound
cobia August 17 off Windmill Point in Chesapeake Bay, while Jim Rutherfoord, outdoor
editor for the Rodford News Journal (below),
caught this prize-winning largemouth bass in
Back Bay during the eighth annual Tidewater
Anglers Club Bass Rodeo, June 4th. The 3pound, 14-oz. bass was the largest of 305
fish registered by 74 anglers in the day-long
contest.

Photo by Vernon Stevens

House-Approved Amendment Halting Wetlands Drainage Killed in Conference

The House of Representatives on July 27 took a major step toward halting federal subsidies for drainage of wetlands of value to wildlife by adopting an amendement offered by Congressman Henry S. Reuss (Wis.) during floor debate on H.R. 8230, the Agricultural Act of 1961. The amendment offered by Mr. Reuss, and adopted by the House on a voice vote, says that no assistance will be provided by the U. S. Department of Agriculture to farmers for drainage of wetlands when the Secretary of the Interior declares it would damage wildlife resources, It read:

"No contract for assistance under the Soil Conservation and Domestic Allotment Act, as amended, shall be entered into by the Secretary with a farm operator for draining wet lands, either through grants or technical assistance, where the Secretary of the Interior has made a finding that wildlife preservation will be materially harmed by the proposed drainage, and has reported such finding to the Secretary of Agriculture."

However, since the Senate had already passed its version of the Agricultural Act of 1961, S.1643, on July 26, without such a provision, the amendment went before a Conference Committee where it was eliminated from the bill. Virginia Congressman J. Vaughan Gary, in correspondence with Game Commission Executive Director Chester Phelps, stated Angust 4 that he felt the fight over the measure was beneficial and that the chances of securing the legislation next year are good.



Grease, Rinse Motors Used in Salt Water

Ever take a swim in salt water and have your wet hair dry before you take a shower? Did it feel as if someone had dumped a gallon of maple syrup on your head?

If so, you experienced the common malady of those who live near the ocean, and the remedy is simple—wash the hair in fresh water and put on a "little dab" of hair dressing.

And the same cure works equally well for an outboard motor that has been used in salt water, according to the Mercury outboard company, with a slight change. Use fresh water, loads of it, but instead of the hair dressing use a good brand of outboard motor lubricant.

An outboard motor can become sticky, just like your hair, if you let salt water dry on it. So with this in mind the outboard company offers five hints for salt water care and protection of that jewel on the transom of your boat;

- 1. Grease the swivel pin. The importance of this can not be overstated. The swivel pin is the vertical shaft on which the motor turns for steering, and if it gets dry and sticky it can be plenty troublesome. Lift the engine, find the grease fitting on the housing and apply enough grease so it oozes out both the top and bottom of the pin bracket.
- 2. Check the grease in the lower unit. This is the part of your engine that is underwater, and is much like the transmission of a car. A check will show whether or not it needs grease.
- 3. Grease the exterior linkage of the control system. These exposed parts get the washing effect of salt water most of the time, and a little grease smeared on the linkage will help in preventing corrosion.
- 4. After each immersion in salt water flush the engine. There is a flush plug on the side of the motor. Remove it, insert a garden hose with a simple flushing attachment on the end. and turn on the water. After a few minutes.



With a garden hose and a flushing attachment, available at your marine dealer's, allow fresh water to run through the engine for a few minutes.

taste the water that comes out of the water tube hole, and when no trace of salt is detected the engine is flushed.

5. Rinse off the outside of the engine. While this may seem relatively unimportant, all of us are proud of our outboard motors, and a rinse job will preserve their beauty. Just like washing your hair, washing the outboard motor will make it shiny and bright.

Be a smart outboard owner—a little grease, a little fresh water and a little time saves money and increases pleasure. Try it!

Flotilla 93 Passes 60-Member Mark

More than 60 boaters from the Roanoke area have joined Coast Guard Auxiliary Flotilla 93. Details about this flotilla may best be obtained by contacting William B. Procejus, Commander, Flotilla 93, U. S. Coast Guard Auxiliary, P. O. Box 54, Roanoke, Va.



46,000 Virginia Boats Registered; Sales Must Be Reported

While 46,346 boats powered by motors of 10 or more horsepower had been lawfully registered with the Virginia Commission of Game and Inland Fisheries as of August 15, 1961, the failure of many boat owners to notify the Commission of the sale of their boats has meant delay in one phase of the boat registration process, the commission's boat section reports.

Registration of unnumbered boats has been speeded up so that temporary certificates of registration showing the permanent boat number are mailed within two days after receipt of application. Numbers are now issued from the commission's Richmond office.

Some delay is unavoidable with the plastic permanent cards which are processed out of state, but every effort is being made to speed up the delivery of these cards. Temporary certificates are valid for 60 days.

Transfer of ownership procedure for boats which have a Virginia registration number has been delayed because the original owners are not filing change of status forms with the commission. Applications from new owners cannot be processed until this notice is received. The Virginia Boating Safety Act requires boat owners to notify the Game Commission within 15 days of any transfer, destruction or abandonment of a registered motorboat. The certificate of number must be returned with this notice. Forms are available at boat dealers and license agents throughout the State and from local wardens.

Richmond Power Squadron Conducts Piloting Course

The Richmond Power Squadron is offering a basic instruction course of 10 lectures known as the United States Power Squadrons Piloting Course free of charge to the general public on Monday evenings at Binford Junior High School. Registration began on September 11.

OCTOBER, 1961 27

